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Steve Vercelli
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10 CFR 50.73

RBG-48048

October 19, 2020

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Licensee Event Report 50-458 / 2020-02-00, "Manual Reactor Scram Due to Reactor Recirculation Pump Trip"

River Bend Station – Unit 1
NRC Docket Nos. 50-458
Renewed Facility Operating License No. NPF-47

In accordance with 10 CFR 50.73, enclosed is the subject Licensee Event Report. This document contains no commitments. If you have any questions, please contact Mr. Tim Schenk, Regulatory Assurance Manager, at 225-381-4177.

Respectfully,

SPV/blj

Enclosure: Licensee Event Report 50-458 / 2020-02-00, "Manual Reactor Scram Due to Reactor Recirculation Pump Trip"

cc: NRC Regional Administrator - Region IV
NRC Project Manager - River Bend Station
NRC Senior Resident Inspector - River Bend Station
Louisiana Department of Environmental Quality
Public Utility Commission of Texas

Enclosure

RBG-48048

Licensee Event Report 50-458 / 2020-02-00, "Manual Reactor Scram Due to Reactor Recirculation Pump Trip"

NRC FORM 366 (08-2020) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See Page 3 for required number of digits/characters for each block)
(See NUREG-1022, R.3 for instruction and guidance for completing this form
http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2023

1. Facility Name	2. Docket Number	3. Page
River Bend Station	05000 458	1 OF 2

4. Title

MANUAL REACTOR TRIP DUE TO REACTOR RECIRCULATION PUMP TRIP

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name / Docket Number	
08	21	2020	2020	- 02 -	00	10	19	2020	N/A	05000 N/A
									Facility Name / Docket Number	
									N/A	05000 N/A

9. Operating Mode	10. Power Level
1	100

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: *(Check all that apply)*

10 CFR Part 20	☐ 20.2203(a)(2)(vi)	☐ 50.36(c)(2)	☑ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(A)	**10 CFR Part 73**
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.69(g)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(4)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(i)	**10 CFR Part 21**	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	☐ 73.77(a)(1)(i)
☐ 20.2203(a)(2)(ii)	☐ 21.2(c)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)	☐ 73.77(a)(2)(i)
☐ 20.2203(a)(2)(iii)	**10 CFR Part 50**	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)	☐ 73.77(a)(2)(ii)
☐ 20.2203(a)(2)(iv)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)	
☐ 20.2203(a)(2)(v)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)	

☐ **OTHER** (Specify here, in abstract, or NRC 366A).

12. Licensee Contact for this LER

Licensee Contact	Phone Number (Include area code)
Tim Schenk, Regulatory Assurance Manager	225-381-4177

13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS		Cause	System	Component	Manufacturer	Reportable to IRIS
B	NA	NA	NA	Yes		NA	NA	NA	NA	NA

14. Supplemental Report Expected		15. Expected Submission Date	Month	Day	Year
☑ No	☐ Yes (If yes, complete 15. Expected Submission Date)		NA	NA	NA

16. Abstract (Limit to 1560 spaces, i.e., approximately 15 single-spaced typewritten lines)

On August 21, 2020 at 0908 CT, River Bend Station (RBS) was operating at 100% reactor power when Reactor Recirculation Pump 'B' tripped. At 0918 CT, a manual reactor scram was inserted at 67% reactor power after receiving indications of flux oscillations on the Period Based Detection System (PBDS) and Average Power Range Monitors (APRMs). All control rods fully inserted and there were no complications. All systems responded as designed.

This report is made in accordance with 10 CFR 50.73(a)(2)(iv)(A) for the manual reactor trip.

LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/)

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
River Bend Station	05000- 458	2020	- 02	- 00

NARRATIVE

EVENT DESCRIPTION

On August 21, 2020 at 0908 hours CT the Reactor Recirculation Pump B tripped. Power lowered to approximately 66% and operators entered GOP-0004, "Single Loop Operation," and AOP-0024, "Thermal Hydraulic Stability Controls."

At 0911 hours extraction steam isolated, leading to lowering level in the 3rd point Feedwater Heater B which caused Heater Drain Pump C to trip on low heater level. This condition led to colder Feedwater temperature being sent to the Reactor. At 0913 hours recirculation flow was lowered to maintain recirculation loop A flow in accordance with Single Loop Operations and Technical Requirement 3.4.1.1.1. The operators began inserting control rods at 0916 hours due to unexpected entry into the Restricted Region of the power to flow map as directed by AOP-0024.

While inserting control rods, alarms were received for Division 1 Period Based Detection System Hi Decay Ratio, Division 2 Period Based Detection System Hi Decay Ration alarm, and Division 2 Period Based Detection System Hi-Hi Decay Ratio. APRM power was observed fluctuating between 62% and 68%.

The Licensed Operator manually tripped the reactor due to indication of rising counts on PBDS.

SAFETY ASSESSMENT

The actual consequence was the initiation of a manual SCRAM. All core responses were as expected and the RBS power to flow map continued to meet the licensing acceptance criteria parameters. There were no actual consequences to general safety of the public, nuclear safety, industrial safety and radiological safety for this event.

EVENT CAUSE

While in single loop operation, slow response of the high-level dump valve, due to debris identified in the air relays, led to low water level in the 3rd point 'B' heater. The low water level in the 3rd point 'B' heater resulted in the trip of the 'C' Heater Drain Pump resulting in colder Feedwater temperature being sent to the Reactor. This condition, combined with being in the Restricted Region of the power to flow map, led to power oscillations.

CORRECTIVE ACTION TO PREVENT RECURRENCE:

- Implement a modification to install air filters upstream of the regulator feeding the positioner to each of the affected AOVs.
- Complete dynamic tuning of the Feedwater Heater Drain System control valves to reduce unnecessary cycling of the AOVs to improve response to changing level demands in the various heaters.

PREVIOUS SIMILAR EVENTS

None.